UPDATE ON USIBWC PROJECTS IN THE LOWER RIO GRANDE VALLEY

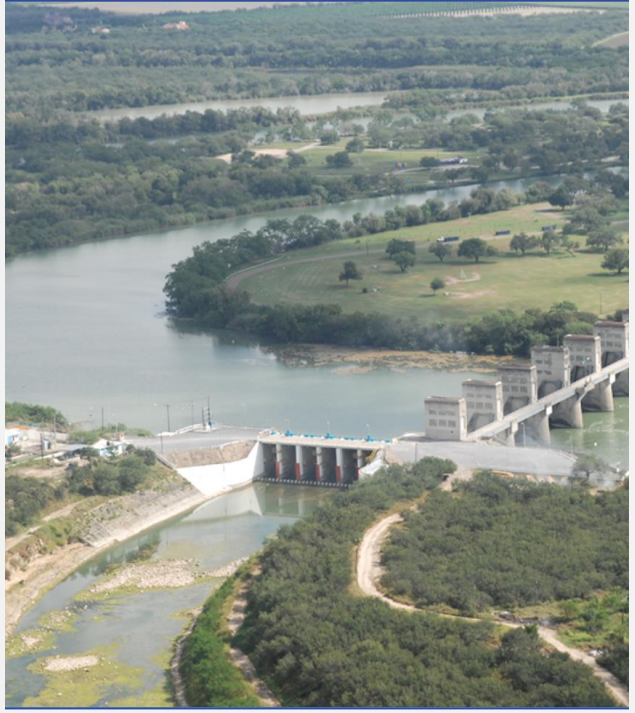
25th Annual Lower Rio Grande Valley Stormwater Management and Planning Conference

May 22-26, 2023

South Padre Island, TX

Dr. Maria-Elena Giner, P.E., Commissioner

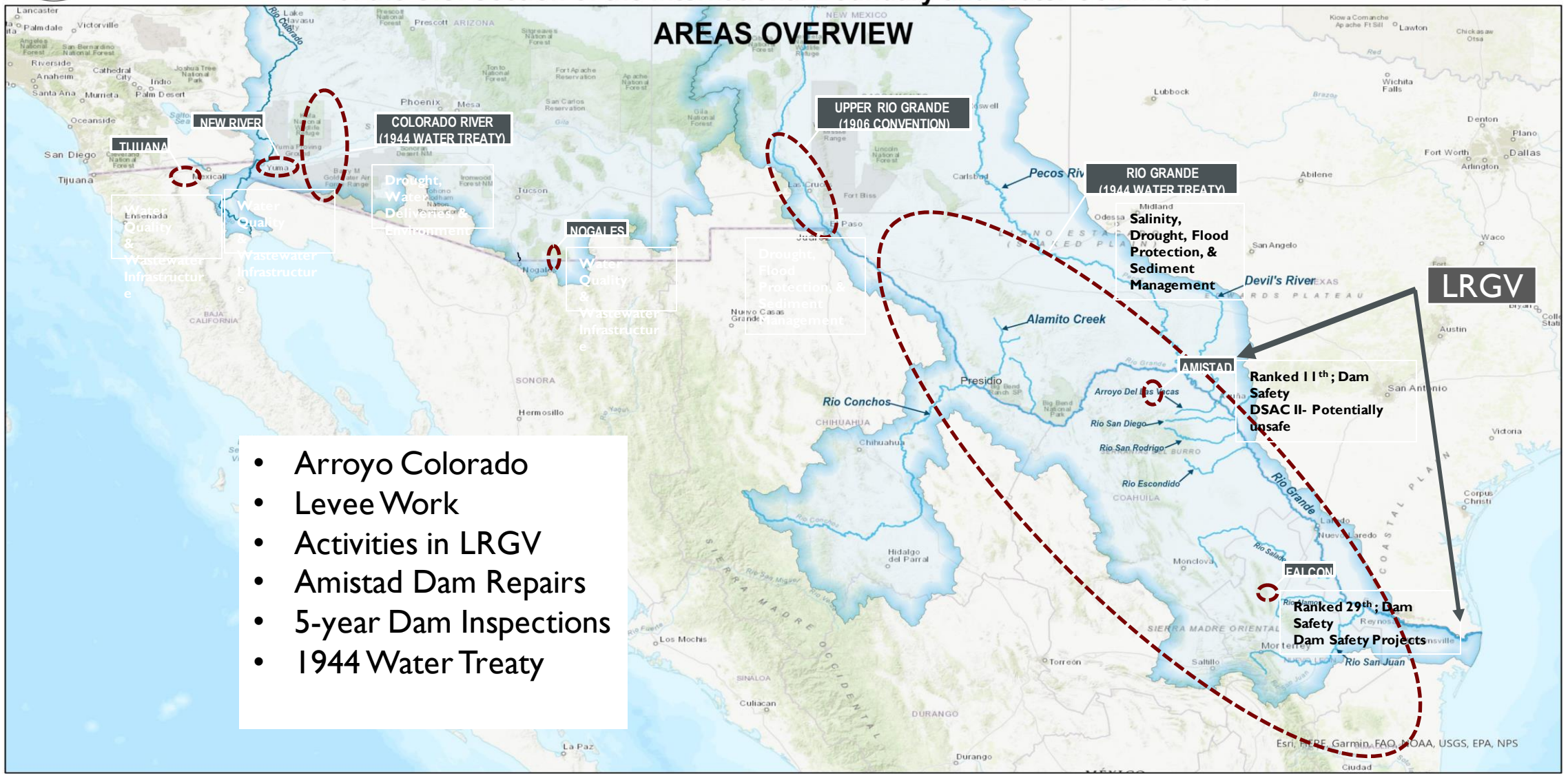
UNITED STATES POWER PLANT at Falcon Dam.



The International Boundary and Water Commission is responsible for **applying the boundary and water treaties** between the United States and Mexico. The USIBWC has a broad range of responsibilities including:

- **Flood Control**: More than 500 miles of levees and 34,900 acres of flood plain
- **Water Delivery**: Ensure compliance with the 1906 Convention and 1944 Water Treaty for the Rio Grande and Colorado River
- **Dams and Hydroelectric Power Plants:** Manage two international dams and five diversion dams
- **Sanitation:** Border sanitation with two international wastewater treatment plants in San Diego, CA and Nogales, AZ
- **Boundary**: Maintain two ports of entry and almost 800 monuments, markers, and buoys

Strategic Priorities and Pending Projects of the U.S. Section of the International Boundary and Water Commission



- Arroyo Colorado
- Levee Work
- Activities in LRGV
- Amistad Dam Repairs
- 5-year Dam Inspections
- 1944 Water Treaty

River

Watershed

0 50 100 200 Miles

0 100 200 400 Kilometers

GIS Section
Master Planning Office
International Boundary and Water Commission
US Section
Date Saved: 12/5/2022 11:00 AM

ARROYO COLORADO

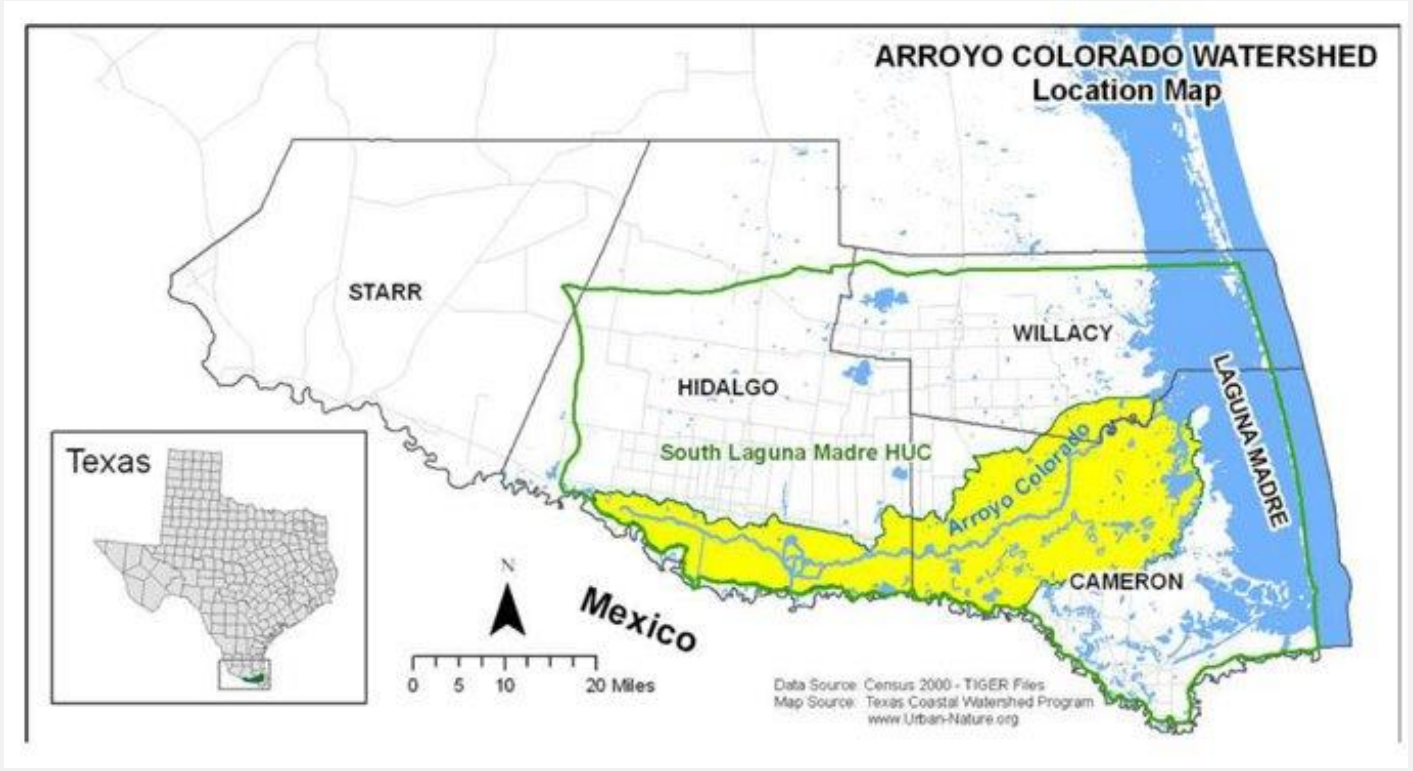
- The Arroyo Colorado is a component of **USIBWC's Lower Rio Grande Flood Control Project** from Anzalduas Dam to the Gulf
- The Arroyo Colorado has a design capacity of 21,000 cfs and **conveys flood flows** diverted from the Rio Grande east to the Laguna Madre
- USIBWC **controls woody vegetation** to maintain flood capacity

Issue: 1996-2012: Conveyance reduced to 45%, or 9,450 cfs

Past Activities:

- Explored options to restore full design capacity
- Sediment dredging, vegetation removal, and restoration
- Restored to over 70% capacity

Ongoing Activities: A hydraulic model that spans the full 30-mile extent



ARROYO COLORADO

- Current status: Scope of work is under review
  - Design services being solicited for the dredging/desilting of 6.3 miles of the Arroyo Colorado.

ARROYO COLORADO

Arroyo Colorado – Invasive Species Clearing

Texas Cane or Giant Reed Cane was very thick in portions of the Arroyo Colorado Floodplain. The floodplain could not sustain the light weight tracked equipment. The contractor had to resolve clearing it with walk- behind gas trimmers. This is a native plant but can be very invasive in the floodplain.

ARROYO COLORADO

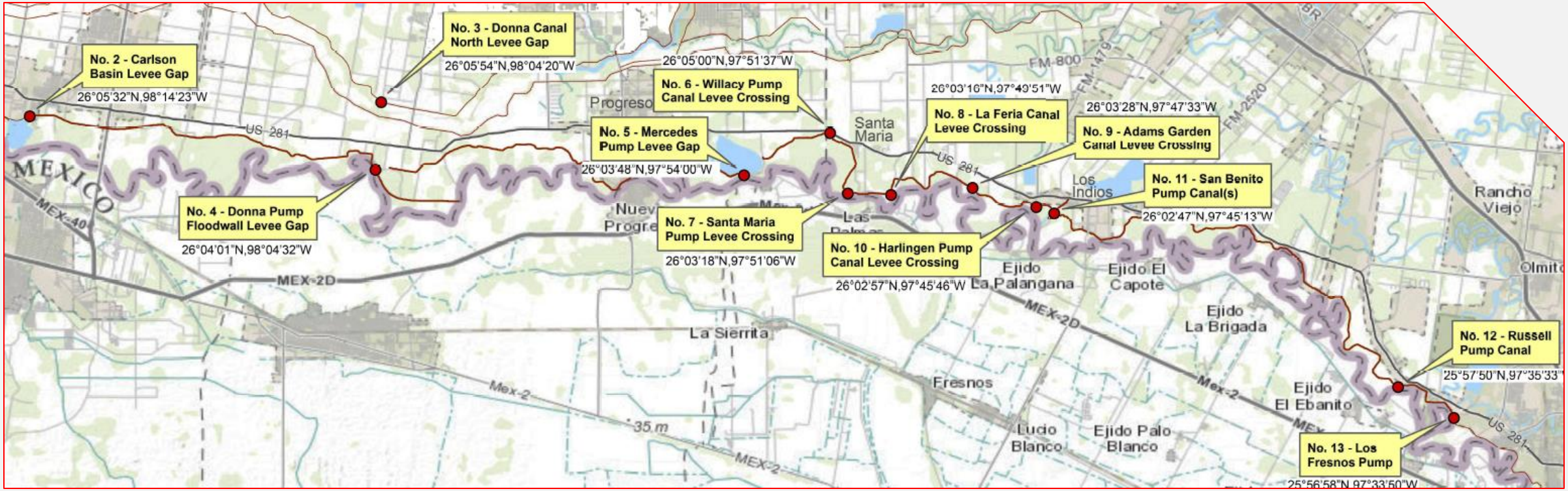
- USIBWC planted more than 30,000 native plants

STATUS OF ACTIVE LEVEE PROJECTS

NAME	STAGE	LENGTH	STATUS	Construction Costs *
"**Santa Maria to Los Indios** – Levee Alignment Rehabilitation"	*Design*	12.5 Miles	Project at Pre-100% completion. Scheduled for **completion in June 2023**. No funding for Construction	$22 M Levee Rehabilitation
			This project Includes four (4) Levee Gaps: Santa Maria, Willacy, La Feria and Adams Garden	$16 M Levee Gaps
Mercedes and Los Fresnos Levee Gaps Hidalgo & Cameron Counties, Texas	*Design*	2 Locations	Los Fresnos Target to award **construction in FY23**.	$8 M Los Fresnos Levee Gap
				$8 M Mercedes Levee Gap
"**Edinburg Pump Station Levee**" Rehabilitation Design Build	Construction	800 linear ft: West Levee- 370 linear feet East Levee- 430 linear feet	Notice to Proceed: 1/19/2023 Construction **Completion Date: 11/5/23**	$6.5 M
"Remediation of Levee and Floodplain Failure within the Upper **Brownsville Levee Reach**"	*Design*	0.23 Miles or 1,200 Ft	Design completed. Can proceed with construction. Target to award **construction FY24**	$9 M.

*Construction Management Services not included

Levee Gap Locations



Levee Gaps Needing Design

No. 11 - San Benito Pump Canal Levee Gap
No. 10 - Harlingen Pump Levee Gap
No. 2 - Carlson Basin Levee Gap
No. 12 - Russell Camp Pump Canal
No.3 - Donna Canal Levee Gap
No. 4 - Donna Canal Pump Levee Gap

Levee Gaps Design completed $54M

No. 6 - Willacy Pump Canal Levee Gap
No. 7 - Santa Maria Levee Gap
No. 9 - Adams Garden Levee Gap
No. 8 - La Feria Canal Levee Gap
No. 5 – Mercedes Pump Levee Gap
No. 13 – Los Fresnos Pump Levee Gap

Mercedes and Los Fresnos Project Renderings

Existing Mercedes Levee Gap
Failed Structure

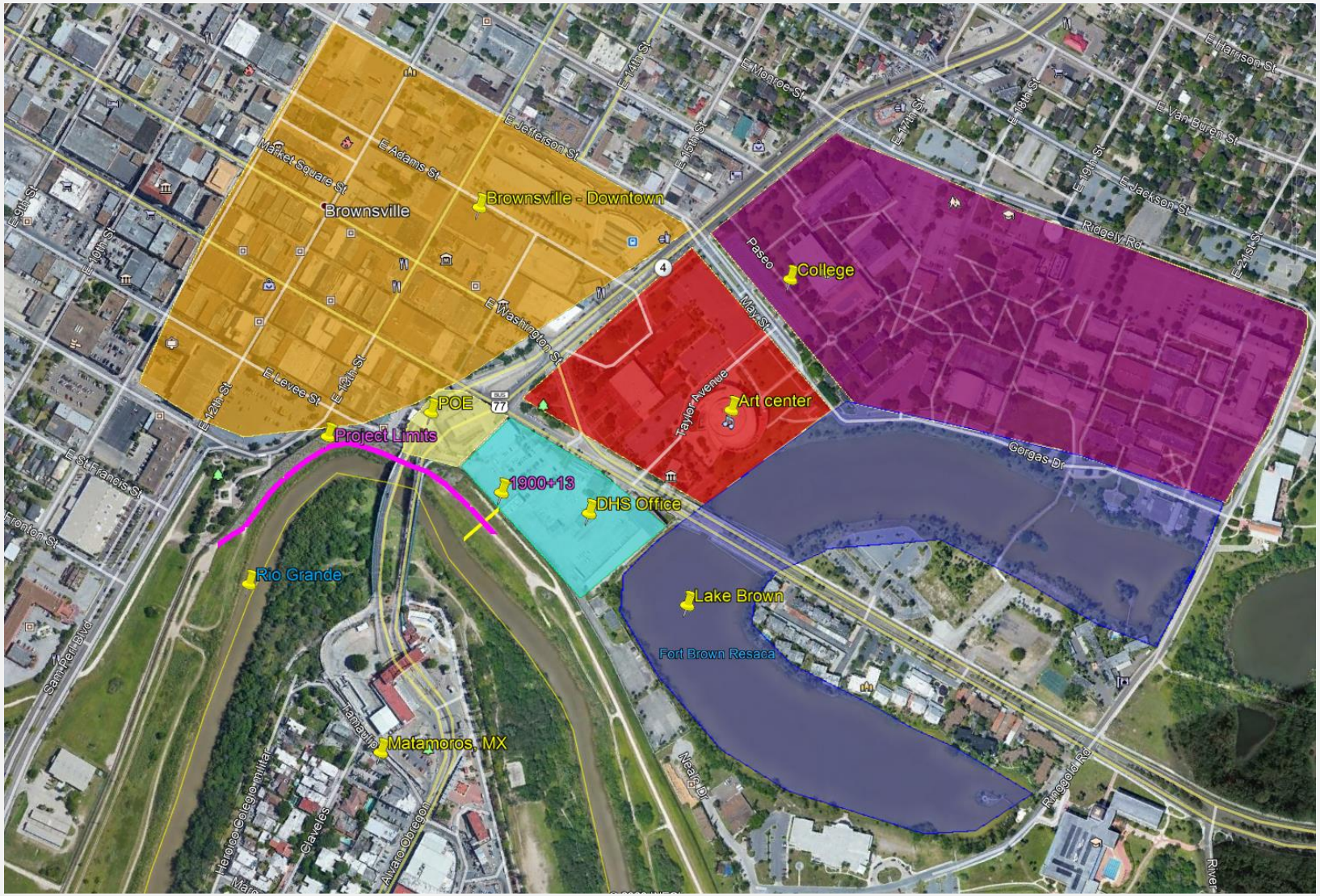
Mercedes Levee Gap Rendering

Existing Los Fresnos Levee Gap
No Structure

Los Fresnos Levee Gap Rendering

Upper Brownsville Levee Reach – Potential Impacts

Upper Brownsville Levee Reach



<u>Impacts if a 100 year flood event occurs</u>

Flooding in

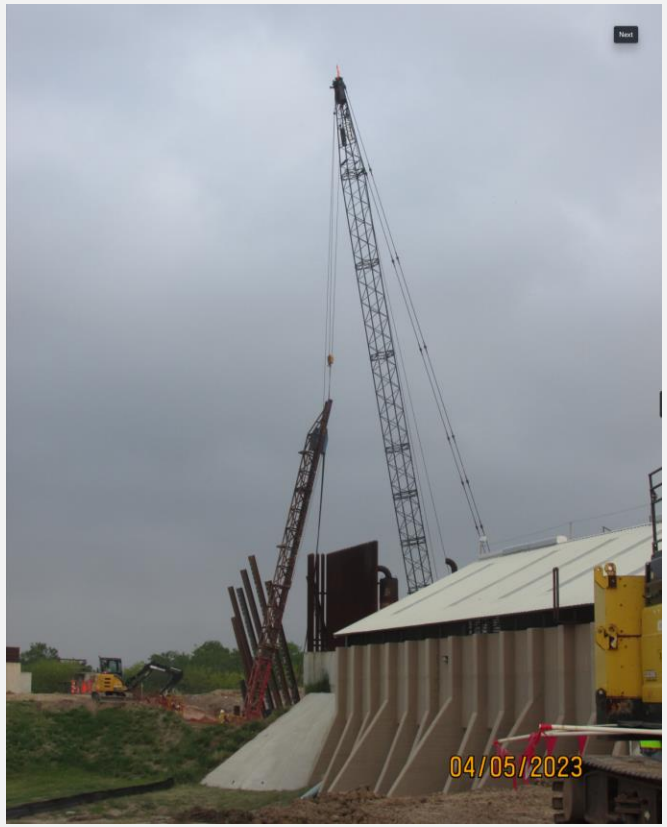
- ✓ College housing
  - 12,000 (+/-) students
- ✓ Arts Center area
- ✓ Downtown Brownsville
- ✓ DHS offices

- Design completed, can proceed to construction.
- 0.23 Miles (1,200 Feet)
- Scheduled award 2024.
- Est. Cost: $11M

Edinburg Pump Station Levee Rehabilitation

Edinburg Pump Station Levee Rehabilitation
Existing Condition – Before Construction

Edinburg Pump Station Levee Rehabilitation
Ongoing Construction



- H-Pile driving on the west side of the pump station
- Reinforcing and formwork on the east side of the pump station

Estimated Completion: 11/5/2023

NEEDS IN THE LRGV

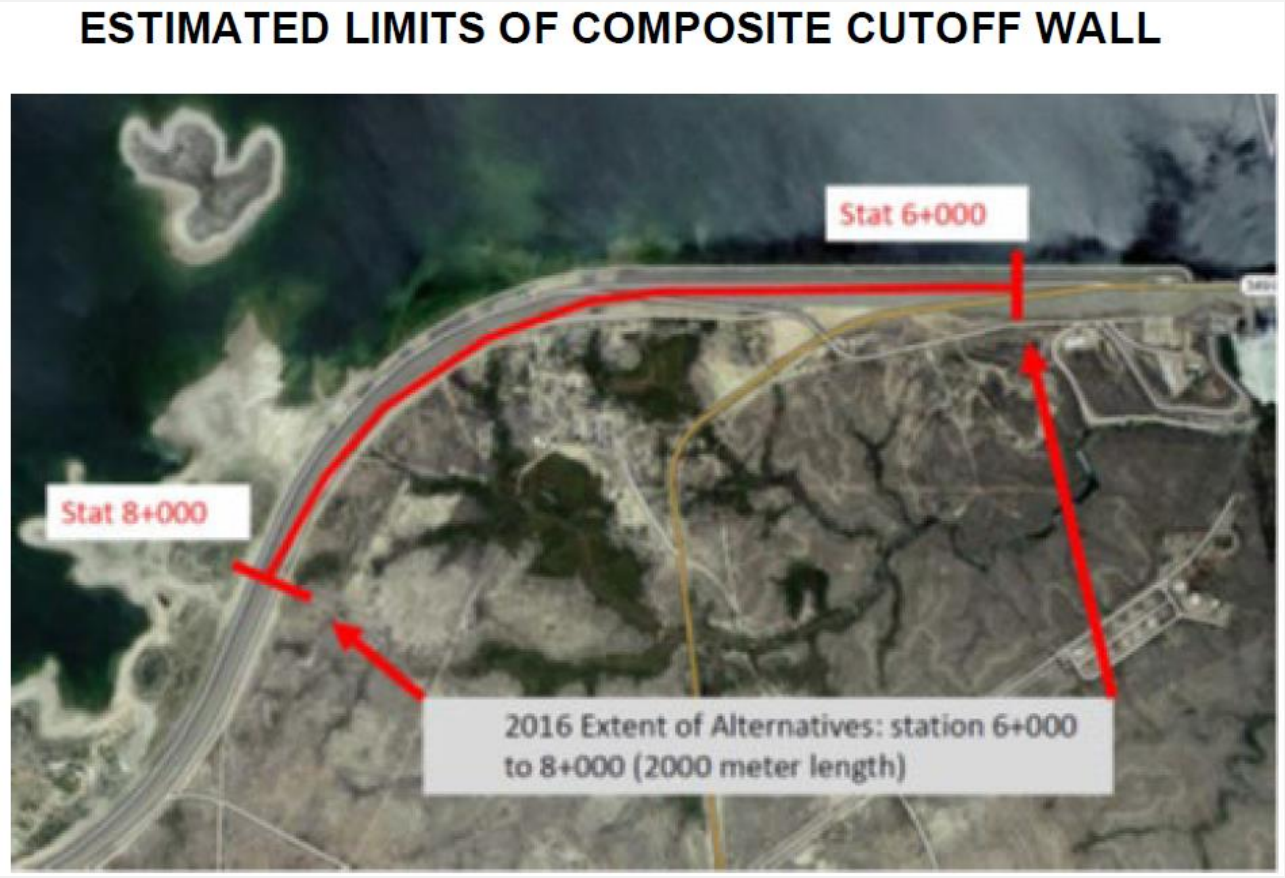
- **Capital Plan** to prioritize Levee rehab needs for unfunded segments
- **Manpower Study** to identify additional personnel needed
- **Asset Management System** to identify needs in materials to maintain levee roadway, structures, floodgates, de-silting, and mowing.
- **Budget Augmentation Authorization** through partnering with others.
- Law enforcement to remove unauthorized traffic and illegal dumping on levees and floodplain.

AMISTAD REPAIRS

ISSUES

- Sink holes endanger dam
- Potential risk to the structure's stability
- Categorized Class II DSAC– Potentially Unsafe
- Population at risk (PAR)
  - During a high pool (elev. 1,145 feet/349 meters)
    - 286,278 people during the day
    - 395,587 during the night.

DSAC = Dam Safety Action Classification



Phase I – Grout Curtain (Upstream/Downstream)
- Design- Build
- International Procurement Process
- Construction Grout Curtains

Phase II Cutoff Wall
- Design-Build
- Procurement Process (Included in Phase I or separate, dependent on Contract method and funding)
- Construction Cutoff Wall

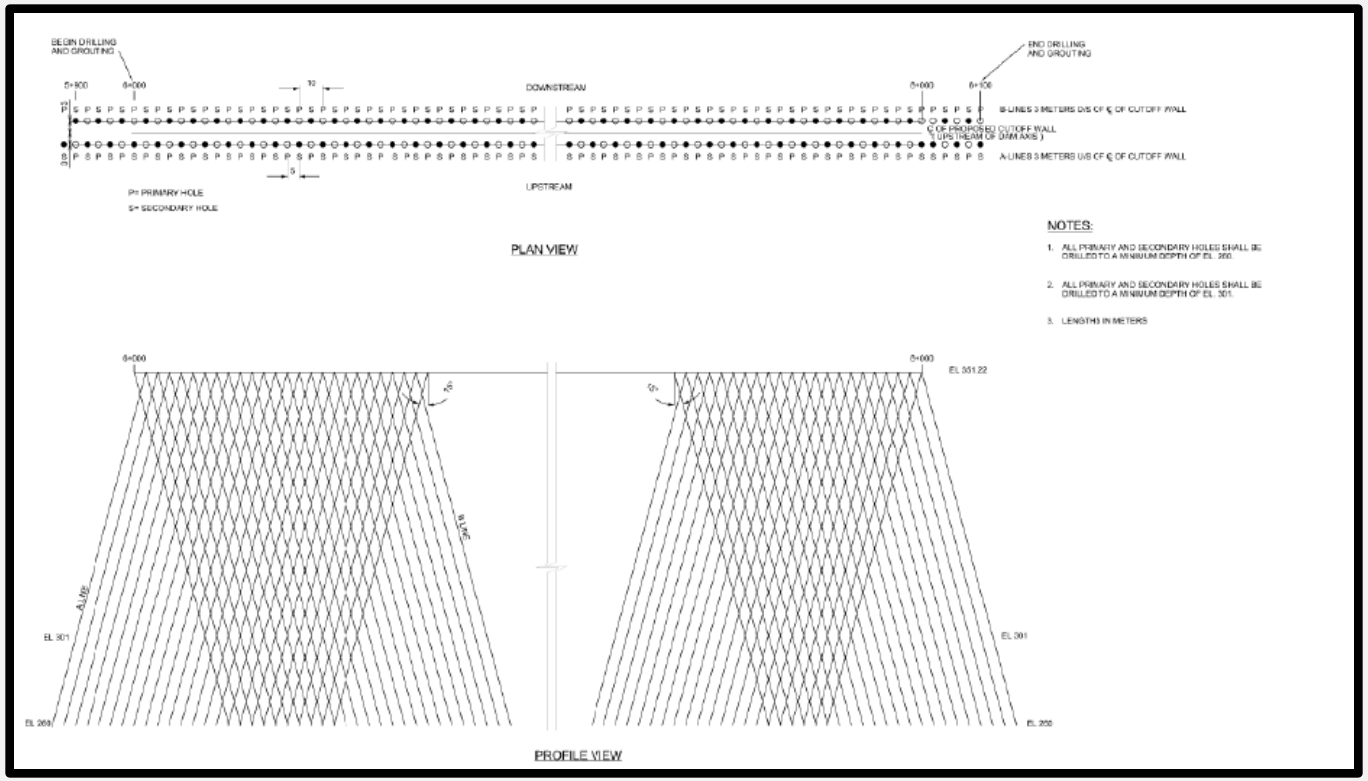
Estimated Total Cost Range for Both Phases
- $80M – $276M

Factors Impacting Cost
- Required Depth of Grout Curtains
- Required Depth of Cutoff Wall
- Starting and Ending Limits ****

****Phase I will help refine estimated costs

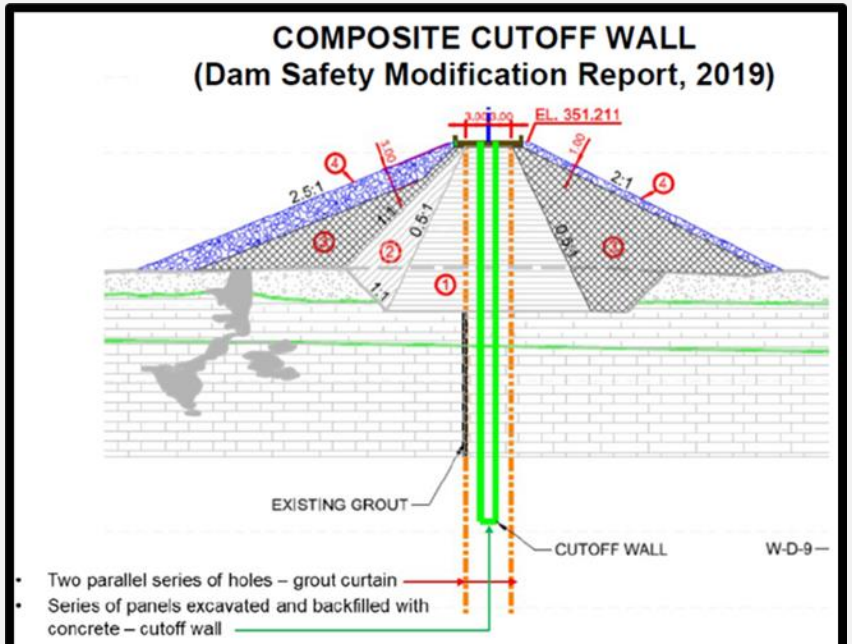
AMISTAD REPAIRS

Separate into two



PROPOSED SOLUTION

- *Composite Cutoff Wall*
  - ✓ Recommended permanent rehabilitation alternative per the Joint Expert Panel
  - ✓ Designed to intercept/cut off flow of water through karstic bedrock foundation
  - ✓ Prevents the flow of water though the embankment
  - ✓ Meets all tolerable risks



Two Phase Approach

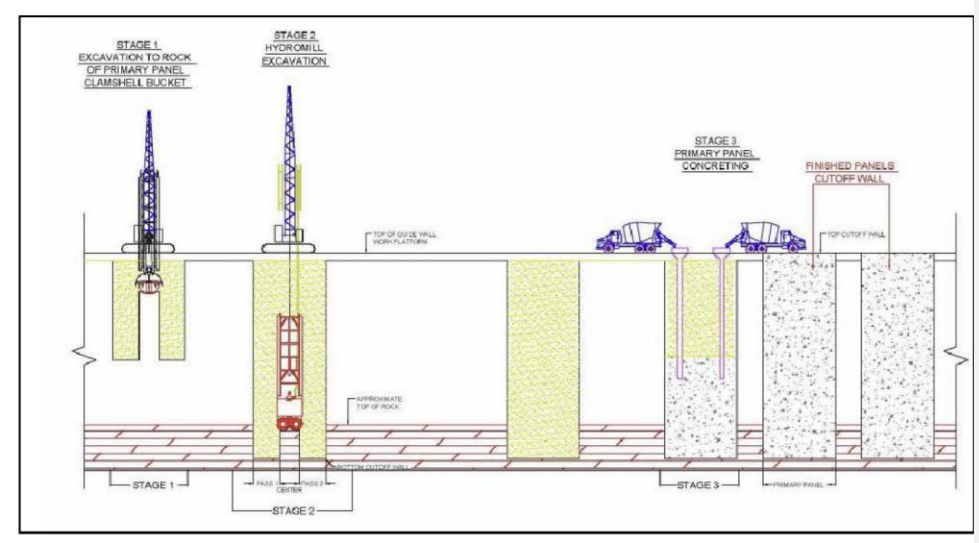
1) Design/Construction of a two-line grout curtain (Upstream and Downstream)
   - Geotechnical analysis
   - Design/construction to required depths and limits
   - Ancillary works (Bypass Road)

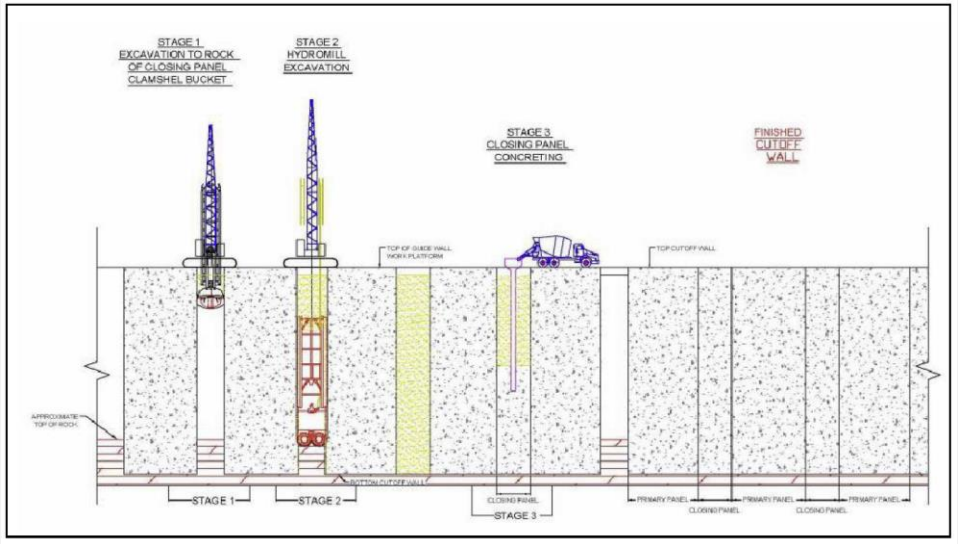
2) Design/Construction of a concrete cutoff wall
   - Design/construction to required depths and limits based on the grout curtain phase
   - Ancillary works (Widen Dam Top)

Draft Schedule *(Not Finalized)*

MX Draft SOW to hire AE to develop CutoffWall SOW	3 mths
Review/Solicit Contract for AE to develop SOW	3 mths
Award	1 mth
AE to Develop Cutoff Wall SOW	3 mths
Review/Solicit Cutoff Wall SOW	3mths
Award	1 mth
Design grout curtains, cutoffwall, ancillary works	11 mths
Construction	18 mths

Draft Schedule (*Not Finalized*)



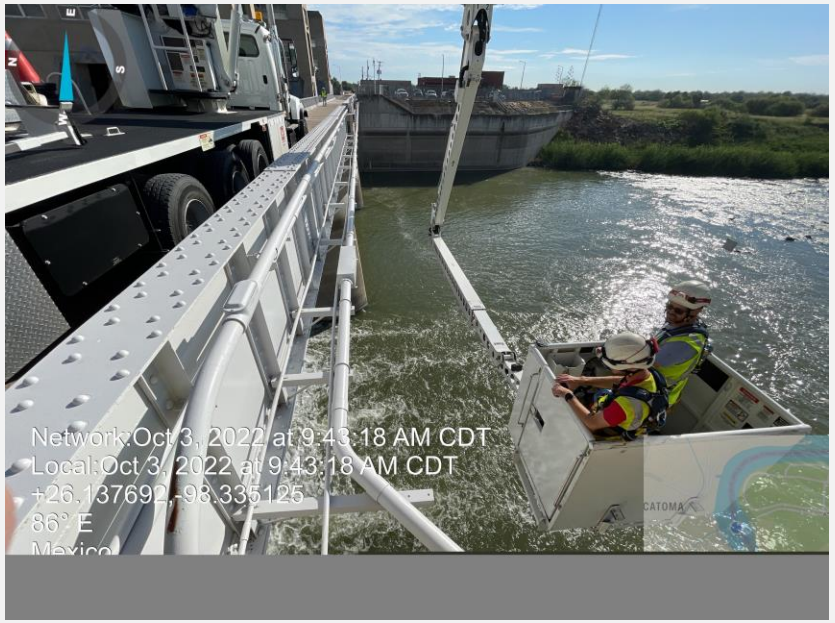


NEXT STEPS

- **Joint Report** of the Principal Engineers being finalized
- Mexican Section has submitted their **draft SOW** and is currently under review by the U.S. Section
- **Mexico to contract** with specialized private companies/consultants for the design and construction
- Commence Phase **I (Grout Curtains)** with existing funds
- Secure **additional funds** for total project as soon as practical
- **Cost share** in accordance with Minutes 210 and 235
    - 56.2% for the United States
    - 43.8% for Mexico
- **Commence Phase II (Cutoff Wall)** during Phase I or as soon as practical, depending on contract method and funding, to ensure that the complete composite cutoff wall alternative will be constructed
- Continue **routine monitoring programs** of the dam's automated and conventional instrumentation
- Continue **binational data exchange**

5-YEAR INSPECTIONS

- The Army Corps of Engineers were contracted to make an assessment for 5 diversion structures and Amistad and Falcon Dams
- Anzalduas and Retamal Dam
  - These were completed in October 2022 and March 2023.
  - Final report is pending from the U.S. Army Corps of Engineers.
- Amistad and Falcon Dams inspections are tentatively scheduled for October 2023, finalizing USACE experts



Water Deliveries

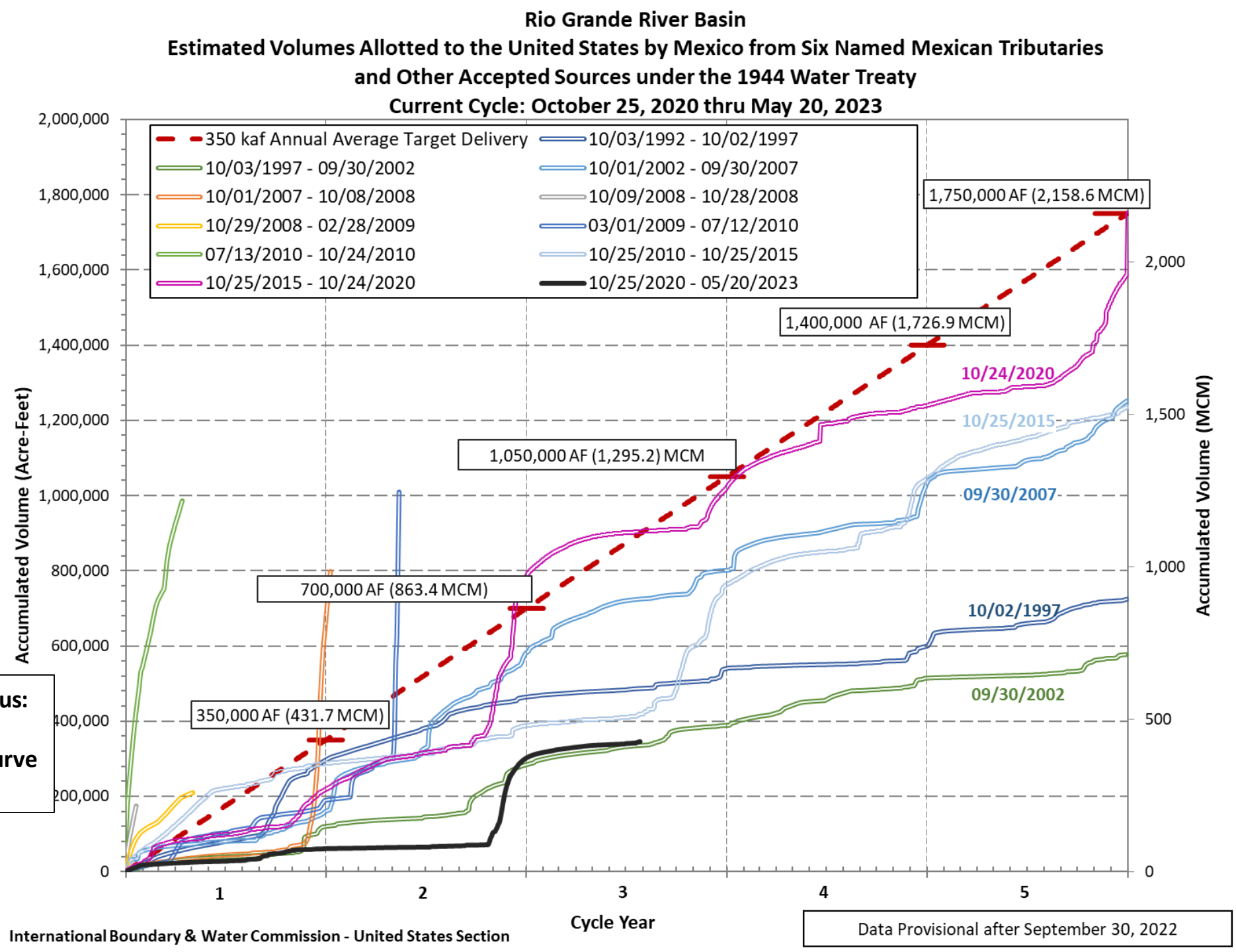
El Paso-Juarez
Convention of 1906

International Dams

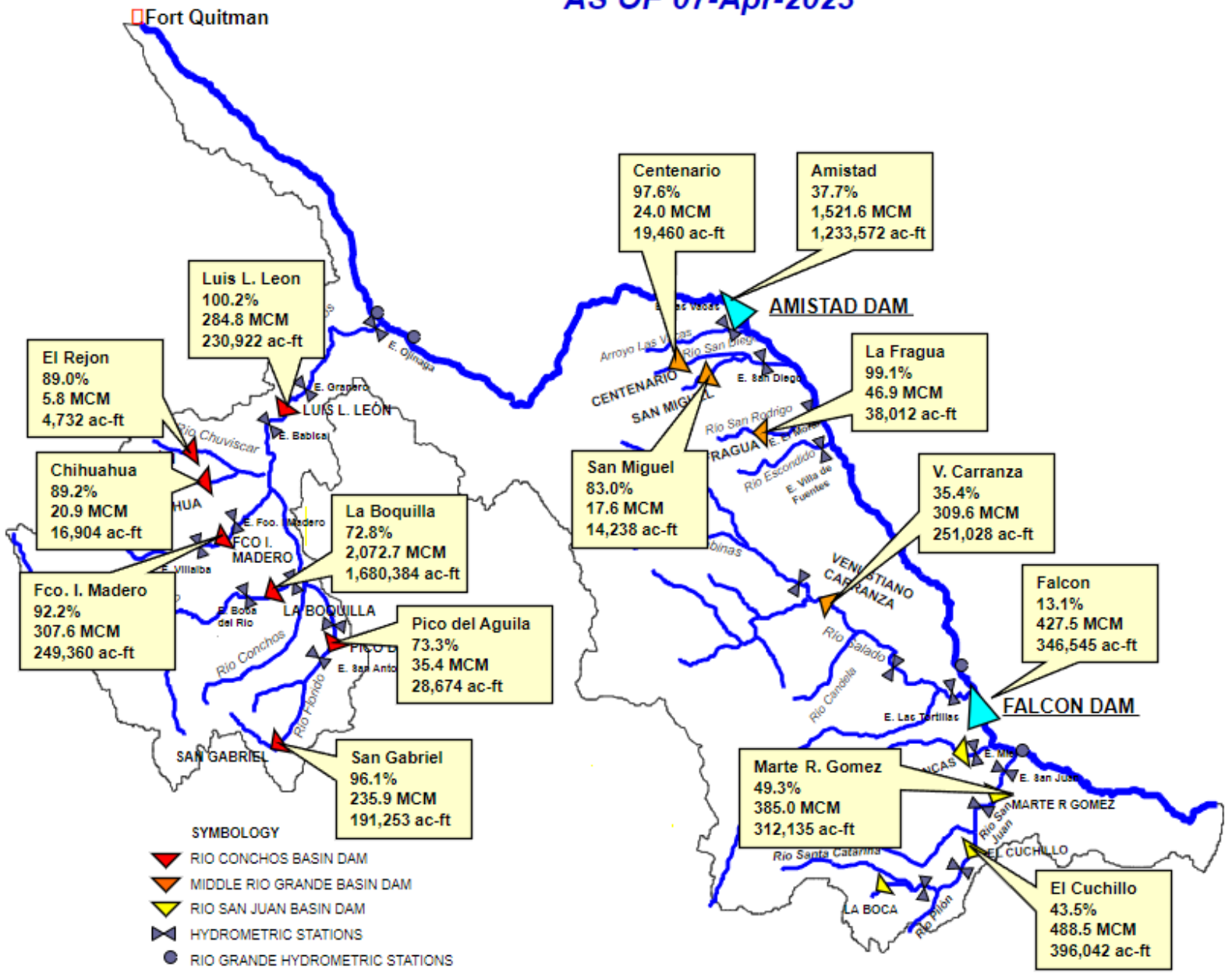
1944 Water Treaty

1944 Water Treaty

Current Seasonal 5-Year Cycle Delivery Status:
345,856 AF (427 MCM) as of May 20, 2023
-471,090 AF (-581 MCM) below seasonal curve
42.3% of expected minimum delivery



SELECT DAMS OF THE RIO GRANDE BASIN
AS OF 07-Apr-2023



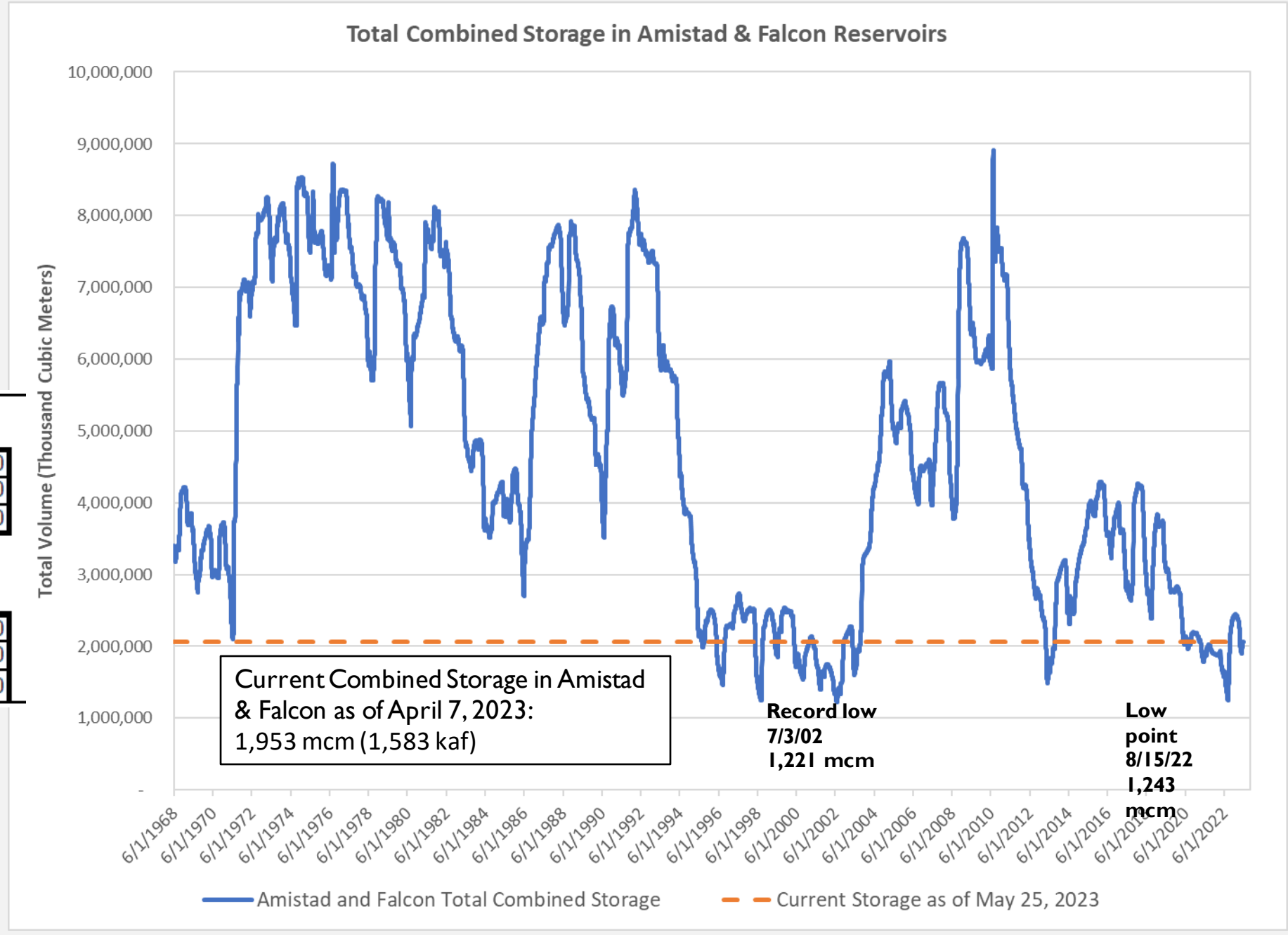
Ownerships as of May 13, 2023

U.S. Storage

	%cap	TCM	Acre-Ft
Amistad	35.8%	812,000	658,000
Falcon	21.3%	408,000	331,000
Total	29.2%	1,220,000	989,000

Mx. Storage

	%cap	TCM	Acre-Ft
Amistad	25.0%	443,000	359,000
Falcon	25.3%	342,000	277,000
Total	25.1%	785,000	636,000



Cooperation on the Rio Grande

Minute 325

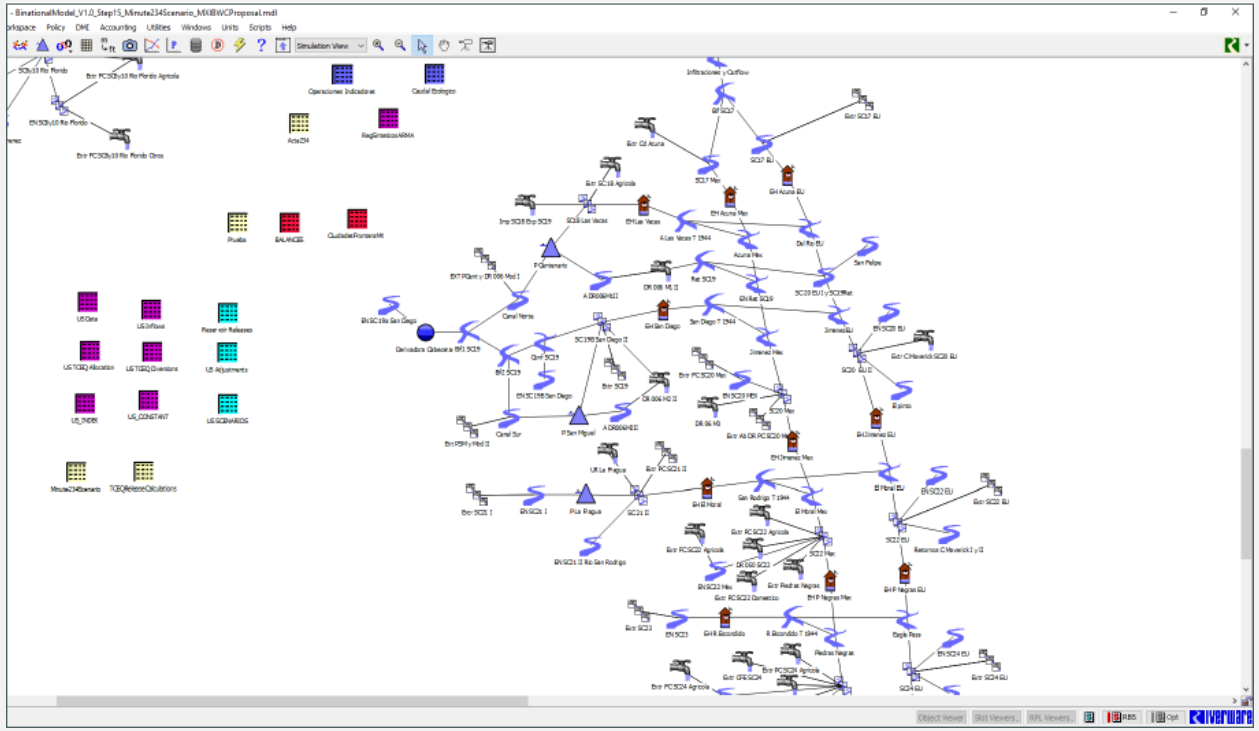
The Commission met at 10:00 a.m. on **October 21, 2020** in Ciudad Juarez, Chihuahua near International Monument No. 1 to consider measures to end the current Rio Grande water delivery cycle without a shortfall, to improve the predictability and reliability of Rio Grande water deliveries to users in the United States and Mexico, and to permit the adoption of measures that may supply the municipal water needs of Mexican communities located along the Rio Grande downstream from Amistad International Dam in the event of an emergency

“ … to improve the predictability and reliability of Rio Grande water deliveries to users in the United States and Mexico…”

Cooperation on the Rio Grande

Minute 323

- Rio Grande **Policy Work Group** meets 2-3 times per year
- Rio Grande **Hydrology Work Group** meets monthly
- Developing a model so we can test different management/delivery scenarios



Rio Grande Policy Work Group Meeting May 2022 (attended by DOS and SRE)

May 19, 2023

USIBWC

Office of the Commissioner

Rio Grande Update

To update local stakeholders on activities relating to Rio Grande water resource management, the United States Section of the International Boundary and Water Commission (USIBWC) will provide periodic updates via email regarding the development of U.S. -Mexico agreements (IBWC "Minutes"), computer modeling of water management options, water accounting, dam safety, and federal and state funding opportunities. Following is our first update, related to Mexico's Rio Grande water deliveries.

FEDERAL-STATE STAKEHOLDER MEETING
Lower Rio Grande Valley
Texas A&M AgriLife Research and Extension Center
Main Building Auditorium
2415 E. Highway 83
Weslaco, TX 78596

July 27, 2022
2:00 – 5:00 p.m. CDT

THE RIO GRANDE/RIO BRAVO
WATER DELIVERIES UNDER THE 1944 TREATY:
A COMPENDIUM OF IDEAS

PREPARED AT THE REQUEST OF THE
UNITED STATES INTERNATIONAL BOUNDARY AND WATER COMMISSION

DECEMBER 2022

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